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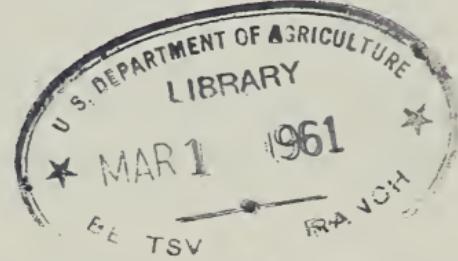
Emergency

Tillage

for

Wind-Erosion

Control



U. S. DEPARTMENT OF AGRICULTURE

Soil Conservation Service

PA-362

July 1958

Emergency Tillage for Wind-Erosion Control

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There is only one permanent cure for wind erosion on agricultural land. The land must be kept covered with either plant residues or with growing plants at least during the critical blow period.

But if you don't have sufficient plant cover—dead or alive—you can use "emergency tillage" as a temporary measure. Emergency tillage roughens the surface of the soil enough to give TEMPORARY protection against wind erosion. Use it only when there is too little plant residue or too few growing plants to hold the soil. Its purpose is not the breaking of hardpans or tillage pans although some of this may result.

Avoiding as much tillage as possible is important in conservation because tillage buries plant residues, hastens the loss of organic matter, pulverizes the soil, speeds up loss of soil moisture, and in other ways hurts the physical condition of the soil. Emergency tillage, therefore, should be used only as a last resort. It has the same effect on the soil as excessive tillage.

Field with too little residue to protect the soil. This field needs emergency wind-erosion-control tillage just before the windy season begins.

NEB-1868



Often a single emergency tillage operation to roughen the soil can be expected to keep the soil from blowing for only a short time. On sandy soils this one tillage may last for one or two "heavy blows." One rain or snow may also destroy its effectiveness. After this you may need to till again. For soils where clods are readily formed, a single roughening operation will have longer lasting effects. For these reasons, the best type of wind-erosion-control tillage varies for different soils.

In general, work no larger area than necessary to control blowing at the time. Often you can work narrow strips and leave undisturbed areas, to work again at a later date if this becomes necessary. Once all the land has been worked, unless it rains or snows there will be less chance to bring up new cloddy material.

Obviously, the best time for wind-erosion-control tillage is just before a hard blow. However it is difficult or impossible to predict just when a soil-damaging wind will occur. Therefore, when you know your soil will need it, it is best to perform such tillage a short while before the damaging windy season is due. Any farmer who has lived in an area for sometime knows about when to expect high winds.

For Lands Having a Sandy or Sandy Loam Soil

Emergency tillage for wind-erosion control of soils having a sandy surface is effective for only short periods. The following method will be of some value.

Listing

Solid list the field in the same direction as the crop will be planted. The first listing should be shallow, not more than 4 inches deep, and it should be done when the soil is moist if possible. Later listings, if necessary, should be done at progressively deeper depths whether splitting the middles or working in the old furrows. If there is some row-crop stubble, list between the rows, leav-



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Emergency listing of sandy land gives temporary wind-erosion control. (Top) This listing is not turning up stable clods. This field will probably have to be listed one or more additional times before the blow season is over. (Bottom) In addition to the clods this field also has some dead stalks to help hold the soil. But the stand of stalks was too thin to give adequate wind-erosion control.

ing the stubble sticking up in the ridges. A little standing row-crop stubble in the ridges helps immensely to stabilize the soil.

There may be times when a field with a sparse cover of growing wheat needs some listing to stop blowing. The wheat remaining may then go on to produce.

For Lands Having Medium or Fine-Textured Soil

The effect of emergency tillage lasts longer on medium- and fine-textured than on sandy soils.

The cloddy surface on these soils is usually rougher and the clods last longer. Chiseling is the best way to turn up the kind of clods that control blowing on these soils.

Chiseling

In compact soils either a narrow or a heavy-duty chisel is best, preferably the heavy-duty type. In loose soils, if enough clods can be brought up, a shovel-type chisel is satisfactory.

Run chisels only deep enough to bring up clods. When soils are dry and hard, this is not difficult with a chisel.

In loose soils you will have to run the chisels at a greater depth to bring up the clods. But if this depth slows your tractor to less than 2 miles an hour, you may not get enough clods. If chisels won't do the job, then use a lister.

An intermediate speed of $3\frac{1}{2}$ to 4 miles per hour is best for emergency chiseling. Excessive speeds tend to pulverize the clods, and slower speeds will not bring enough clods to the surface.

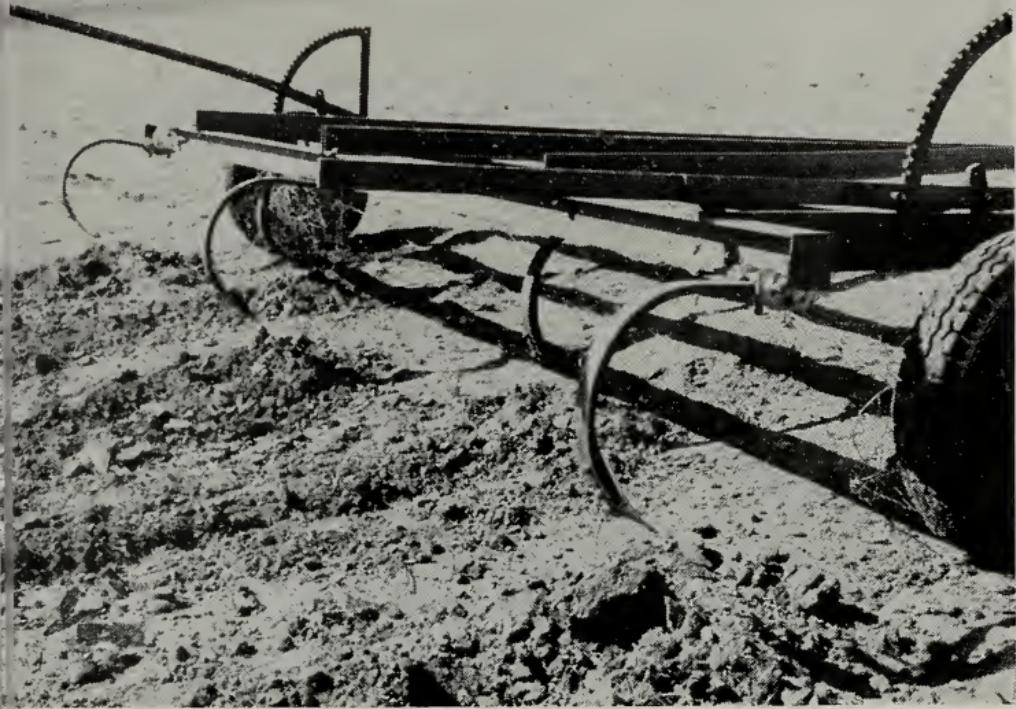
If a row crop is to be planted in the field, space the chisels the same distance apart as that between the rows.

The most effective direction for emergency chiseling is across the direction of the prevailing winds. But if you are going to plant a row crop, it is better

Chiseling on 42-inch centers, the normal width of planting row crops on this farm. This operation is leaving enough large durable clods to give emergency wind-erosion control.

NM-13,706





KANS-1771

A close-up view of a chisel implement.

to till in the same direction or at right angles to the direction you intend to plant. Chisel marks running in the same direction or at right angles to the direction the crop is to be planted will not interfere with the row-crop planter.

Where a stand of wheat is not holding the soil, wider spacing, up to 54 inches, may be close enough. This may make it possible for you to salvage part of your crop.

If there is not enough cover and your next crop is to be drilled or broadcast, chiseling will probably be most effective at right angles to the prevailing winds. Chisels may be spaced as close as 27 inches if necessary. More than one chiseling may be needed during the blow season. Heavy snow or rain or several high winds may destroy the effectiveness of one chiseling. If you need to repeat, run the chisels between the old chisel marks.

Listing

If you can't chisel satisfactorily due to loose surface soil, use a lister or a machine equipped with small furrow openers. Use the spacing and directions already described for listing of sandy soils.

